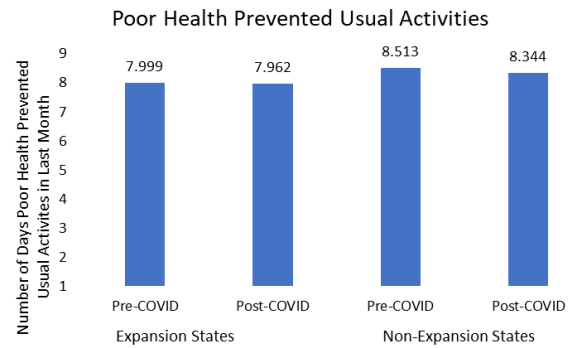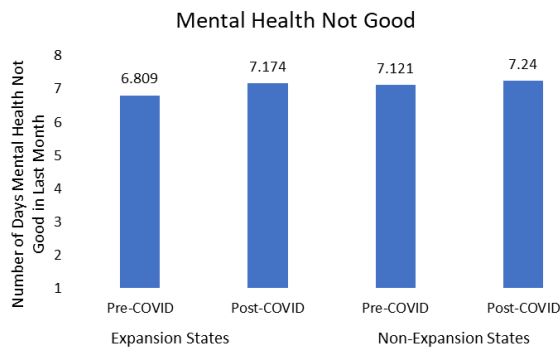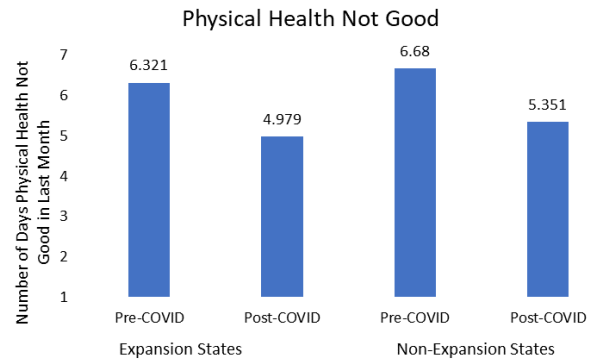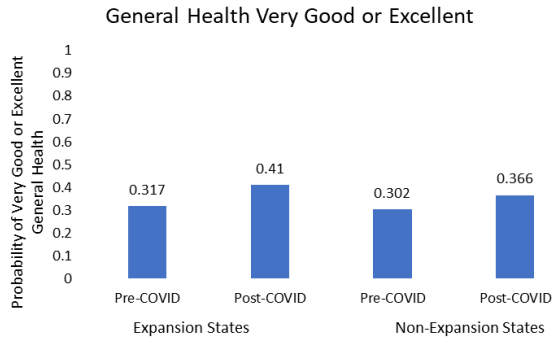# Association between State Medicaid Expansion Status and Health Outcomes During the COVID-19 Pandemic

Appendix

Appendix Figure A1. Pre- and Post-COVID-19 Pandemic Means of Outcome Variables by State Medicaid Expansion Status

Health Insurance Coverage

Expansion States: Pre-COVID 0.775, Post-COVID 0.776
Non-Expansion States: Pre-COVID 0.598, Post-COVID 0.575
(Probability of Having Insurance)

Heavy Drinking

Expansion States: Pre-COVID 0.052, Post-COVID 0.053
Non-Expansion States: Pre-COVID 0.055, Post-COVID 0.068
(Probability of Heavy Drinking in Past Month)

Current Smoker

Expansion States: Pre-COVID 0.27, Post-COVID 0.269
Non-Expansion States: Pre-COVID 0.294, Post-COVID 0.282
(Probability of Smoking in Past Month)

Flu Shot

Expansion States: Pre-COVID 0.298, Post-COVID 0.32
Non-Expansion States: Pre-COVID 0.27, Post-COVID 0.26
(Probability of Flu Vaccination in Past Year)

Exercise

Expansion States: Pre-COVID 0.649, Post-COVID 0.649
Non-Expansion States: Pre-COVID 0.609, Post-COVID 0.609
(Probability of Exercise in Past Month)

Obese

Expansion States: Pre-COVID 0.362, Post-COVID 0.38
Non-Expansion States: Pre-COVID 0.402, Post-COVID 0.452
(Probability of Obesity)

General Health Very Good or Excellent

Probability of Very Good or Excellent General Health

	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
	0.317	0.41	0.302	0.366
	Expansion States		Non-Expansion States	

Physical Health Not Good

Number of Days Physical Health Not Good in Last Month

	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
	6.321	4.979	6.68	5.351
	Expansion States		Non-Expansion States	

Mental Health Not Good

Number of Days Mental Health Not Good in Last Month

	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
	6.809	7.174	7.121	7.24
	Expansion States		Non-Expansion States	

Poor Health Prevented Usual Activities

Number of Days Poor Health Prevented Usual Activites in Last Month

	Pre-COVID	Post-COVID	Pre-COVID	Post-COVID
	7.999	7.962	8.513	8.344
	Expansion States		Non-Expansion States	

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level (N=179,135). Figures present means for expansion and non-expansion states in the pre-COVID period (January 2016 to February 2020) and the post-COVID period (March 2020 to December 2020). Estimates account for BRFSS survey weights.

Appendix Table A1. State Classifications

State (1)	Medicaid Expansion State? (2)	Mask Mandate Implementation Date (3)	COVID Severity (4)
Alaska	Yes	4/24/2020	Below Average
Arkansas	Yes	7/20/2020	Above Average
Alabama	No	7/16/2020	Above
Arizona	Yes	n/a	Above
California	Yes	6/18/2020	Above
Colorado	Yes	7/16/2020	Below
Connecticut	Yes	4/20/2020	Above
Delaware	Yes	4/28/2020	Above
District of Columbia	Yes	4/17/2020	Above
Florida	No	n/a	Above
Georgia	No	n/a	Above
Hawaii	Yes	4/20/2020	Below
Idaho	Yes	n/a	Below
Illinois	Yes	5/1/2020	Above
Indiana	Yes	7/27/2020	Below
Iowa	Yes	n/a	Above
Kansas	No	7/3/2020	Below
Kentucky	Yes	5/11/2020	Below
Louisiana	Yes	n/a	Above
Maine	Yes	5/1/2020	Below
Maryland	Yes	4/18/2020	Above
Massachusetts	Yes	5/6/2020	Above
Michigan	Yes	4/27/2020	Above
Minnesota	Yes	7/24/2020	Below
Mississippi	No	n/a	Above
Missouri	No	8/5/2020	Below
Montana	Yes	n/a	Below
Nebraska	No	6/26/2020	Above
Nevada	Yes	6/26/2020	Above
New Hampshire	Yes	n/a	Below
New Jersey	Yes	4/8/2020	Above
New Mexico	Yes	5/15/2020	Below

New York	Yes	4/17/2020	Below
North Carolina	No	n/a	Above
North Dakota	Yes	n/a	Below
Ohio	Yes	7/23/2020	Below
Oklahoma	No	n/a	Below
Oregon	Yes	7/1/2020	Below
Pennsylvania	Yes	7/1/2020	Below
Rhode Island	Yes	4/18/2020	Above
South Carolina	No	n/a	Above
South Dakota	No	n/a	Below
Tennessee	No	n/a	Above
Texas	No	7/3/2020	Above
Utah	Yes	4/10/2020	Above
Vermont	Yes	8/1/2020	Below
Virginia	Yes	5/29/2020	Below
Washington	Yes	6/26/2020	Below
West Virginia	Yes	7/7/2020	Below
Wisconsin	No	8/1/2020	Below
Wyoming	No	n/a	Below

Sources: Kaiser Family Foundation (https://www.kff.org/health-reform/state-indicator/state-activity-around-expanding-medicaid-under-the-affordable-care-act/).
Raifman J, Nocka K, Jones D, Bor J, Lipson S, Jay J, and Chan P. (2020). "COVID-19 US state policy database." Available at: www.tinyurl.com/statepolicies.

Notes: Column (2) describes states' Medicaid expansion status. We define states that implemented Medicaid expansion by July 2020 as expansion states; states labeled "yes" are expansion states, and states labeled "no" are not expansion states. Column (3) contains the date a state first implemented a mask mandate in 2020. Column (4) describes a state's COVID-19 severity. We determine the severity using a state's cumulative case rate as of July 2020; states labeled "above" have case rates above the national average, and states labeled "below" have case rates below the national average.

Appendix Table A2. Full Regression Results

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
Expanded x Post-Covid	0.013 [-0.019,0.045]	-0.014*** [-0.025,-0.004]	-0.019* [-0.041,0.004]	0.028** [0.005,0.051]	0.016 [-0.010,0.042]	-0.025 [-0.060,0.011]	0.049*** [0.022,0.076]	-0.321 [-0.785,0.143]	-0.393** [-0.714,-0.072]	-0.283 [-1.049,0.484]
Age	0.002*** [0.001,0.003]	-0.000 [-0.000,0.000]	0.003*** [0.003,0.003]	0.003*** [0.003,0.004]	-0.005*** [-0.006,-0.004]	0.005*** [0.004,0.005]	-0.009*** [-0.010,-0.009]	0.041*** [0.035,0.048]	0.214*** [0.198,0.231]	0.195*** [0.186,0.204]
Black, non-Hispanic	-0.000 [-0.013,0.012]	-0.016*** [-0.025,-0.007]	-0.127*** [-0.148,-0.105]	0.010 [-0.006,0.025]	-0.027*** [-0.037,-0.018]	0.073*** [0.061,0.085]	0.025*** [0.011,0.039]	-2.982*** [-3.427,-2.536]	-2.508*** [-2.895,-2.121]	-1.974*** [-2.341,-1.607]
Other, non-Hispanic	-0.012 [-0.034,0.009]	-0.021*** [-0.032,-0.010]	-0.108*** [-0.138,-0.078]	0.049*** [0.020,0.079]	-0.002 [-0.015,0.011]	-0.060*** [-0.098,-0.022]	-0.013 [-0.029,0.003]	-2.271*** [-3.207,-1.336]	-1.291*** [-2.088,-0.494]	-0.778 [-1.832,0.276]
Hispanic	-0.223*** [-0.265,-0.180]	-0.025*** [-0.032,-0.019]	-0.247*** [-0.271,-0.222]	0.034*** [0.013,0.055]	-0.030*** [-0.045,-0.016]	0.024** [0.001,0.046]	-0.045*** [-0.066,-0.024]	-4.258*** [-4.728,-3.788]	-2.767*** [-3.174,-2.359]	-2.749*** [-3.258,-2.239]
Less than high school	-0.075*** [-0.093,-0.057]	0.007*** [0.003,0.012]	0.071*** [0.054,0.088]	-0.006 [-0.017,0.006]	-0.056*** [-0.066,-0.045]	0.009 [-0.002,0.021]	-0.077*** [-0.090,-0.063]	0.845*** [0.559,1.131]	0.879*** [0.502,1.256]	1.066*** [0.716,1.415]
Some college	0.042*** [0.032,0.053]	0.012*** [0.005,0.018]	-0.039*** [-0.057,-0.021]	0.009 [-0.008,0.026]	0.067*** [0.056,0.079]	-0.002 [-0.009,0.006]	0.046*** [0.034,0.057]	0.794*** [0.403,1.186]	0.348*** [0.184,0.512]	0.298** [0.007,0.589]
College or more	0.035*** [0.022,0.048]	0.001 [-0.005,0.006]	-0.159*** [-0.185,-0.132]	0.050*** [0.035,0.066]	0.111*** [0.092,0.130]	-0.077*** [-0.089,-0.065]	0.140*** [0.123,0.156]	-0.699*** [-1.191,-0.208]	-1.293*** [-1.562,-1.025]	-1.260*** [-1.597,-0.922]
Unemployed	-0.075*** [-0.108,-0.042]	0.014*** [0.010,0.018]	0.071*** [0.049,0.093]	-0.051*** [-0.063,-0.039]	0.030*** [0.016,0.045]	0.016** [0.002,0.029]	-0.022*** [-0.033,-0.011]	0.851*** [0.481,1.221]	-0.492*** [-0.707,-0.277]	0.651*** [0.371,0.931]
Female	0.076*** [0.070,0.083]	-0.026*** [-0.033,-0.019]	-0.059*** [-0.072,-0.046]	0.064*** [0.050,0.078]	-0.036*** [-0.054,-0.019]	0.090*** [0.073,0.106]	-0.046*** [-0.057,-0.035]	1.405*** [1.061,1.750]	0.230** [0.015,0.444]	-0.341** [-0.637,-0.045]
Married	-0.011* [-0.024,0.002]	-0.019*** [-0.026,-0.012]	-0.087*** [-0.096,-0.077]	0.010* [-0.000,0.020]	0.001 [-0.013,0.015]	0.011 [-0.012,0.033]	0.020*** [0.007,0.033]	-1.645*** [-1.887,-1.403]	-1.193*** [-1.410,-0.976]	-1.129*** [-1.428,-0.830]
Number of Children	-0.015*** [-0.026,-0.005]	0.002 [-0.000,0.005]	0.009** [0.000,0.017]	-0.018*** [-0.024,-0.012]	-0.004 [-0.013,0.006]	0.005 [-0.003,0.013]	-0.000 [-0.006,0.005]	-0.184** [-0.333,-0.036]	-0.152** [-0.295,-0.008]	-0.005 [-0.177,0.166]

Household Size	0.010*	-0.001	-0.003	0.003	0.005	0.011**	0.003	-0.072	-0.194***	-0.329***
	[-0.002,0.022]	[-0.004,0.002]	[-0.010,0.005]	[-0.001,0.008]	[-0.005,0.014]	[0.002,0.019]	[-0.005,0.010]	[-0.194,0.050]	[-0.329,-0.060]	[-0.470,-0.187]
Cell Phone Sample	-0.023**	0.008**	0.012	-0.022***	-0.001	-0.024***	-0.017*	0.716***	0.348**	0.074
	[-0.043,-0.003]	[0.002,0.014]	[-0.004,0.028]	[-0.035,-0.010]	[-0.017,0.015]	[-0.038,-0.011]	[-0.034,0.000]	[0.277,1.155]	[0.067,0.630]	[-0.352,0.499]
State Unemployment Rate	0.001	0.001	0.000	-0.002	-0.003**	-0.002	0.003*	0.042**	-0.054	-0.025
	[-0.002,0.004]	[-0.001,0.002]	[-0.002,0.003]	[-0.004,0.001]	[-0.006,-0.001]	[-0.005,0.001]	[-0.000,0.006]	[0.001,0.083]	[-0.122,0.014]	[-0.119,0.070]
N	172,676	162,882	167,762	161,217	168,533	158,880	172974	169,851	169,168	117,032
Adjusted R^2	0.152	0.009	0.114	0.033	0.049	0.045	0.099	0.067	0.124	0.097

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each column displays coefficient estimates and 95% confidence intervals for a different regression. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level (N=179,135). Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix Table A3. Pretrends Tests

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
Expanded X Linear Time Trend	-0.001 [-0.012,0.010]	-0.001 [-0.004,0.002]	0.001 [-0.004,0.007]	-0.001 [-0.007,0.004]	-0.005 [-0.018,0.007]	0.002 [-0.005,0.010]	0.001 [-0.006,0.009]	0.056 [-0.134,0.246]	0.139 [-0.076,0.355]	0.080 [-0.097,0.257]
N	151,456	143,012	147,200	141,103	147,253	139,481	151,715	149,047	148,428	103,688

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2019.

Notes: Each column represents a different regression. Table presents coefficient estimates and 95% confidence intervals for the interaction of the Medicaid expansion indicator and a linear time trend. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** p<0.01, ** p<0.05, * p<0.10

Appendix Table A4. Heterogeneity Tests

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
By COVID Severity										
States with higher case rates	0.008 [-0.035,0.051]	-0.016** [-0.029,-0.003]	-0.027** [-0.053,-0.002]	0.021 [-0.007,0.049]	0.024 [-0.014,0.062]	-0.024 [-0.068,0.020]	0.040** [0.007,0.072])	-0.295 [-0.708,0.118]	-0.299 [-0.672,0.073]	-0.598 [-1.352,0.156]
States with lower case rates	0.015 [-0.011,0.042]	-0.011** [-0.021,-0.001]	0.008 [-0.013,0.029]	0.025** [0.002,0.049]	0.002 [-0.032,0.036]	-0.020 [-0.048,0.008]	0.074*** [0.026,0.122]	-0.043 [-1.161,1.075]	-0.641* [-1.319,0.037]	0.038 [-1.465,1.540]
By Sex										
Men	0.020 [-0.021,0.062]	-0.031*** [-0.054,-0.008]	-0.062*** [-0.108,-0.016]	0.052** [0.012,0.091]	0.012 [-0.037,0.060]	-0.043 [-0.123,0.036]	0.061*** [0.021,0.102]	-0.032 [-0.518,0.455]	-0.076 [-0.908,0.756]	0.630* [-0.049,1.309]
Women	0.011 [-0.033,0.056]	-0.004 [-0.020,0.011]	0.003 [-0.019,0.026]	0.012 [-0.017,0.041]	0.016 [-0.010,0.043]	-0.013 [-0.042,0.016]	0.041*** [0.013,0.069]	-0.527 [-1.173,0.119]	-0.587*** [-0.952,-0.222]	-0.740 [-1.745,0.265]
By Race/ Ethnicity										
White, non-Hispanic	-0.023* [-0.048,0.003]	-0.000 [-0.018,0.017]	-0.017 [-0.060,0.026]	0.031* [-0.001,0.062]	-0.013 [-0.051,0.025]	-0.051*** [-0.082,-0.020]	0.035** [0.007,0.064]	0.124 [-0.656,0.903]	0.194 [-0.656,1.044]	0.125 [-0.816,1.066]
Black, non-Hispanic	0.027 [-0.007,0.060]	-0.024 [-0.055,0.006]	-0.060*** [-0.101,-0.019]	-0.017 [-0.061,0.028]	0.039 [-0.017,0.096]	0.004 [-0.084,0.092]	0.060 [-0.017,0.136]	-1.183** [-2.320,-0.046]	-1.903*** [-2.927,-0.880]	-1.176* [-2.408,0.057]
Other race, non-Hispanic	0.054** [0.000,0.108]	-0.002 [-0.047,0.043]	-0.028 [-0.080,0.024]	-0.019 [-0.104,0.066]	-0.030 [-0.117,0.057]	-0.006 [-0.105,0.092]	-0.024 [-0.151,0.103]	0.403 [-1.797,2.603]	-0.352 [-2.823,2.119]	1.257 [-1.002,3.515]
Hispanic	0.043** [0.002,0.084]	-0.027*** [-0.047,-0.007]	-0.014 [-0.035,0.006]	0.054*** [0.016,0.092]	0.033 [-0.038,0.103]	-0.021 [-0.102,0.059]	0.080*** [0.026,0.134]	-0.427 [-1.174,0.321]	-0.033 [-0.683,0.618]	-0.668 [-2.015,0.678]
By Education Attainment										
Less than high school	0.000 [-0.090,0.091]	-0.037** [-0.066,-0.009]	-0.003 [-0.038,0.033]	0.021 [-0.037,0.079]	0.033* [-0.006,0.072]	-0.019 [-0.097,0.059]	0.058** [0.007,0.109]	0.264 [-0.730,1.259]	-0.330 [-1.410,0.750]	-0.355 [-2.555,1.846]
High school	0.009 [-0.027,0.045]	-0.002 [-0.019,0.015]	-0.021 [-0.049,0.007]	0.012 [-0.027,0.051]	-0.004 [-0.058,0.050]	-0.010 [-0.073,0.053]	0.047*** [0.014,0.079]	-0.446 [-1.244,0.353]	-0.171 [-0.850,0.508]	-0.327 [-1.142,0.488]

Some college	0.035*** [0.011,0.060]	-0.006 [-0.031,0.019]	-0.041* [-0.087,0.004]	0.043** [0.004,0.081]	0.019 [-0.023,0.060]	-0.051*** [-0.075,-0.027]	0.056*** [0.020,0.092]	-0.646 [-1.542,0.249]	-0.744** [-1.444,-0.045]	-0.209 [-0.801,0.384]
College or more	0.003 [-0.065,0.071]	-0.012 [-0.046,0.022]	-0.025 [-0.061,0.010]	0.071** [0.005,0.138]	0.015 [-0.051,0.080]	-0.007 [-0.059,0.045]	-0.016 [-0.071,0.039]	-1.148** [-2.114,-0.183]	-0.369 [-1.340,0.603]	-0.246 [-1.562,1.071]

By Age

18-34	0.005 [-0.034,0.045]	-0.003 [-0.022,0.016]	-0.008 [-0.032,0.016]	0.048*** [0.014,0.082]	-0.017 [-0.063,0.029]	-0.046** [-0.086,-0.007]	0.049** [0.008,0.089]	-0.475 [-1.052,0.102]	-0.566** [-1.018,-0.115]	-0.557 [-1.465,0.350]
35-49	0.056*** [0.014,0.098]	-0.029** [-0.054,-0.004]	-0.012 [-0.041,0.017]	0.033** [0.006,0.059]	0.044** [0.002,0.085]	-0.001 [-0.052,0.051]	0.038** [0.004,0.072]	-0.046 [-0.978,0.887]	0.455 [-0.264,1.174]	0.558 [-0.360,1.476]
50-64	-0.026 [-0.073,0.021]	-0.018** [-0.036,-0.001]	-0.043* [-0.088,0.002]	-0.010 [-0.057,0.037]	0.029 [-0.021,0.079]	-0.018 [-0.075,0.038]	0.066** [0.007,0.125]	-0.377 [-1.549,0.796]	-0.954 [-2.385,0.476]	-0.593 [-2.784,1.598]

By Parental Status

Parents	0.022 [-0.014,0.058]	-0.020*** [-0.034,-0.007]	-0.035*** [-0.060,-0.011]	0.038*** [0.014,0.061]	0.022 [-0.009,0.054]	-0.025 [-0.067,0.018]	0.065*** [0.032,0.097]	-0.392 [-0.876,0.092]	-0.644*** [-1.055,-0.233]	-1.050* [-2.110,0.010]
Childless adults	-0.005 [-0.032,0.022]	-0.003 [-0.019,0.014]	0.010 [-0.022,0.041]	0.002 [-0.047,0.051]	0.004 [-0.036,0.045]	-0.024 [-0.061,0.014]	0.025 [-0.018,0.068]	-0.212 [-1.164,0.740]	0.057 [-0.519,0.634]	0.876* [-0.001,1.752]

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each cell presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** p<0.01, ** p<0.05, * p<0.10

Appendix Table A5. Sensitivity Analyses with Alternate Study Periods

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
2014-20	0.020 [-0.014,0.054]	-0.015*** [-0.026,-0.005]	-0.022* [-0.046,0.003]	0.027** [0.007,0.047]	0.015 [-0.011,0.041]	-0.023 [-0.060,0.013]	0.046*** [0.023,0.069]	-0.376 [-0.874,0.122]	-0.432** [-0.785,-0.078]	-0.285 [-1.103,0.533]
2015-20	0.015 [-0.018,0.049]	-0.015*** [-0.025,-0.005]	-0.020* [-0.042,0.002]	0.030*** [0.009,0.051]	0.015 [-0.012,0.041]	-0.022 [-0.059,0.014]	0.048*** [0.023,0.072]	-0.356 [-0.835,0.123]	-0.364** [-0.715,-0.014]	-0.252 [-1.063,0.559]
2016-20	0.013 [-0.019,0.045]	-0.014*** [-0.025,-0.004]	-0.019* [-0.041,0.004]	0.028** [0.005,0.051]	0.016 [-0.010,0.042]	-0.025 [-0.060,0.011]	0.049*** [0.022,0.076]	-0.321 [-0.785,0.143]	-0.393** [-0.714,-0.072]	-0.283 [-1.049,0.484]
2017-20	0.013 [-0.020,0.045]	-0.014** [-0.026,-0.002]	-0.019* [-0.039,0.001]	0.031** [0.007,0.054]	0.018 [-0.011,0.046]	-0.024 [-0.062,0.015]	0.051*** [0.024,0.078]	-0.343 [-0.806,0.120]	-0.495*** [-0.836,-0.154]	-0.384 [-1.097,0.328]
2018-20	0.014 [-0.016,0.044]	-0.013** [-0.025,-0.001]	-0.024** [-0.043,-0.005]	0.027** [0.003,0.051]	0.016 [-0.015,0.048]	-0.029 [-0.065,0.008]	0.048*** [0.019,0.076]	-0.321 [-0.902,0.261]	-0.515** [-0.958,-0.072]	-0.361 [-1.205,0.483]
2019-20	0.019 [-0.017,0.054]	-0.015** [-0.027,-0.002]	-0.018 [-0.043,0.007]	0.031** [0.006,0.057]	0.029 [-0.009,0.066]	-0.030 [-0.066,0.006]	0.052*** [0.017,0.087]	-0.428 [-1.102,0.246]	-0.566* [-1.142,0.010]	-0.398 [-1.223,0.427]

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2014-2020.

Notes: Each cell presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** p<0.01, ** p<0.05, * p<0.10

Appendix Table A6. Sensitivity Analyses with Alternate Study Samples

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
<138% FPL (Baseline)	0.013 [-0.019,0.045]	-0.014*** [-0.025,-0.004]	-0.019* [-0.041,0.004]	0.028** [0.005,0.051]	0.016 [-0.010,0.042]	-0.025 [-0.060,0.011]	0.049*** [0.022,0.076]	-0.321 [-0.785,0.143]	-0.393** [-0.714,-0.072]	-0.283 [-1.049,0.484]
<150% FPL	0.013 [-0.014,0.040]	-0.016*** [-0.025,-0.006]	-0.018* [-0.037,0.001]	0.025** [0.005,0.044]	0.011 [-0.013,0.035]	-0.026* [-0.056,0.004]	0.046*** [0.017,0.075]	-0.372 [-0.885,0.141]	-0.452*** [-0.761,-0.144]	-0.305 [-1.036,0.427]
<200% FPL	0.005 [-0.014,0.024]	-0.012*** [-0.021,-0.003]	-0.019*** [-0.031,-0.007]	0.029*** [0.011,0.046]	0.011 [-0.009,0.030]	-0.018 [-0.045,0.009]	0.028** [0.000,0.056]	-0.305 [-0.777,0.166]	-0.239 [-0.590,0.113]	-0.225 [-0.699,0.249]
<250% FPL	0.010 [-0.012,0.033]	-0.007* [-0.014,0.000]	-0.017*** [-0.026,-0.008]	0.031*** [0.013,0.049]	0.011 [-0.008,0.030]	-0.016 [-0.044,0.012]	0.027* [-0.000,0.054]	-0.364* [-0.777,0.049]	-0.335** [-0.653,-0.016]	-0.216 [-0.628,0.196]
High school or less educational attainment	0.007 [-0.004,0.017]	-0.010** [-0.017,-0.002]	-0.014*** [-0.022,-0.005]	0.017* [-0.003,0.038]	-0.000 [-0.021,0.020]	0.009 [-0.013,0.031]	0.017 [-0.004,0.037]	-0.225 [-0.760,0.310]	-0.207 [-0.551,0.137]	0.123 [-0.267,0.513]

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2014-2020.

Notes: Each cell presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Sample includes respondents aged 19-64, and additional sample restrictions are described in the row headers. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** p<0.01, ** p<0.05, * p<0.10

Appendix Table A7. Additional Sensitivity Analyses

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
Baseline	0.013	-0.014***	-0.019*	0.028**	0.016	-0.025	0.049***	-0.321	-0.393**	-0.283
	[-0.019,0.045]	[-0.025,-0.004]	[-0.041,0.004]	[0.005,0.051]	[-0.010,0.042]	[-0.060,0.011]	[0.022,0.076]	[-0.785,0.143]	[-0.714,-0.072]	[-1.049,0.484]
Drop March 2020	0.019	-0.013**	-0.019	0.027**	0.026**	-0.027	0.029*	-0.203	-0.288	-0.392
	[-0.018,0.057]	[-0.024,-0.002]	[-0.048,0.010]	[0.005,0.049]	[0.002,0.049]	[-0.073,0.018]	[-0.002,0.060]	[-0.825,0.419]	[-0.829,0.253]	[-1.284,0.500]
Drop 2020 Expansion States	0.012	-0.015***	-0.020*	0.027**	0.016	-0.025	0.050***	-0.332	-0.398**	-0.280
	[-0.020,0.044]	[-0.025,-0.004]	[-0.042,0.003]	[0.004,0.050]	[-0.011,0.042]	[-0.061,0.011]	[0.022,0.077]	[-0.796,0.133]	[-0.721,-0.075]	[-1.055,0.494]
Omit January and February	0.016	-0.014**	-0.013	0.025*	0.016	-0.029	0.037***	-0.160	-0.127	-0.114
	[-0.020,0.052]	[-0.025,-0.003]	[-0.036,0.009]	[-0.002,0.052]	[-0.012,0.043]	[-0.073,0.015]	[0.012,0.062]	[-0.632,0.313]	[-0.464,0.210]	[-0.968,0.740]
Drop Control Variables	0.006	-0.013**	-0.017*	0.022**	0.008	-0.020	0.044***	-0.312	-0.457**	-0.200
	[-0.030,0.042]	[-0.024,-0.002]	[-0.036,0.002]	[0.001,0.043]	[-0.021,0.038]	[-0.058,0.019]	[0.013,0.074]	[-0.777,0.153]	[-0.819,-0.095]	[-0.885,0.485]
Control for Mask Mandates	0.018	-0.013**	-0.017*	0.030**	0.017	-0.027	0.036**	-0.128	-0.130	-0.053
	[-0.019,0.055]	[-0.025,-0.001]	[-0.038,0.003]	[0.003,0.058]	[-0.009,0.043]	[-0.069,0.015]	[0.006,0.066]	[-0.620,0.363]	[-0.499,0.239]	[-0.871,0.765]

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each cell presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level. Unless otherwise indicated, regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** p<0.01, ** p<0.05, * p<0.10

Appendix Table A8. Falsification Tests

	Have Insurance	Heavy Drinking	Current smoker	Flu Shot	Exercise	Obese	General Health Very Good or Excellent	Number of Days Mental Health Not Good	Number of Days Physical Health Not Good	Number of Days Poor Health Prevented Usual Activities
Elderly	0.007	0.000	0.021	0.034	-0.011	-0.007	-0.041	-0.497	-0.496	-0.372
	[-0.024,0.039]	[-0.009,0.010]	[-0.017,0.060]	[-0.022,0.090]	[-0.062,0.040]	[-0.051,0.037]	[-0.093,0.012]	[-1.219,0.224]	[-1.682,0.691]	[-2.010,1.266]
N	66,199	63,461	64,506	62,927	64,937	63,151	66,073	64,317	63,193	39,398
High-Income	0.000	-0.004	-0.005	0.023***	0.002	-0.008	0.005	-0.055	-0.114	0.100
	[-0.007,0.008]	[-0.013,0.005]	[-0.016,0.005]	[0.010,0.035]	[-0.009,0.013]	[-0.018,0.002]	[-0.009,0.020]	[-0.223,0.112]	[-0.293,0.065]	[-0.195,0.396]
N	574,576	529,701	545,510	529,619	559,499	511,464	576,739	566,104	563,228	271,457

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each cell presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix Table A9. Results for Index Measures

	Unhealthy Behavior Index	Number of Unhealthy Days
Expanded X Post-COVID	-0.016**	-0.463**
	[-0.028,-0.004]	[-0.853,-0.074]
N	165,969	173,543

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each column presents difference-in-differences (DD) estimate and 95% confidence interval for a different regression. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level. Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights, and standard errors are clustered by state.
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix Table A10. Seemingly Unrelated Regression Results

	F-statistic	p-Value
All health behavior outcomes	16.80	<0.001
All self-assessed health outcomes	3.39	0.009
All outcomes	7.99	<0.001

Source: Authors' calculations based on Behavioral Risk Factor Surveillance System (BRFSS) 2016-2020.

Notes: Each row represents a different regression. We estimate a set of stacked regression models and use F-tests to evaluate the compound null hypothesis that all coefficients within a given category of outcomes are jointly equal to 0. Sample includes respondents aged 19-64 with household incomes below 138% of the federal poverty level (N=179,135). Regressions control for respondents' demographic characteristics (including age, race/ethnicity, educational attainment, employment status, sex, marital status, parental status, household size, and whether the respondent was part of BRFSS's cell phone sample), state unemployment rate, state of residence, and quarter-year of interview. Estimates account for BRFSS survey weights.
*** $p<0.01$, ** $p<0.05$, * $p<0.10$

Appendix Table A11. Medicaid Policies During COVID-19 Pandemic in 2020

Policy	Summary
Families First Coronavirus Response Act	Medicaid enrollment increased by 9 million from February 2020 to January 2021, primarily driven by pandemic-related job losses in March-June 2020 and by the Families First Coronavirus Response Act. The Families First Coronavirus Response Act mandated continuous coverage, prohibiting states from disenrolling Medicaid beneficiaries during public health emergencies. Relatedly, studies estimate that if the public health emergency ends when expected in 2022, Medicaid enrollees will decline by 15 million due to the repeal of mandated continuous coverage (Buttegens & Green, 2021).
Telehealth Coverage	Before the pandemic, coverage of telehealth services by Medicaid varied widely by state; however, at the onset of the COVID-19 pandemic in 2020, states expanded access to telehealth through Medicaid. These adjustments included expanding the Medicaid populations who can use telehealth, expanding the services deliverable by telehealth, adjusting payment rates and cost-sharing of telehealth services, expanding the technologies used to deliver telehealth, allowing more types of distant and originating sites, and expanding provider types that may provide telehealth services. Although coverage varied by state in 2020 (and continues to vary), Medicaid programs in all 50 states and DC reimbursed some type of live video visit (Guth & Hinton, 2020).
Medicaid emergency authorities	Beginning in March 2020, states used Medicaid emergency authorities, such as Medicaid Disaster Relief State Plan Amendments (SPAs) and other administrative actions, to address the COVID-19 public health emergency. SPAs allow states to make temporary changes to their Medicaid plans, managing access and coverage issues during the COVID-19 crisis. States made temporary changes regarding eligibility, enrollment, premiums and cost-sharing, benefits, prescription drugs, and payments (Kaiser Family Foundation, 2021).

Notes: This table describes key policy changes related to Medicaid during the COVID-19 pandemic in 2020, which is the only pandemic year included in our study period.

Sources:
Buettgens, M., & Green, A. (2021). What Will Happen to Unprecedented High Medicaid Enrollment after the Public Health Emergency?. Washington, DC: Urban Institute, September

Guth, M. & Hinton, E. (2020). State Efforts to Expand Medicaid Coverage & Access to Telehealth in Response to COVID-19. Retrieved from https://www.kff.org/coronavirus-covid-19/issue-brief/state-efforts-to-expand-medicaid-coverage-access-to-telehealth-in-response-to-covid-19/

Kaiser Family Foundation. (2021). Medicaid Emergency Authority Tracker: Approved State Actions to Address COVID-19. Retrieved from https://www.kff.org/coronavirus-covid-19/issue-brief/medicaid-emergency-authority-tracker-approved-state-actions-to-address-covid-19/